**Year 7 Course Outline - 2016**

* On Demand Testing, Term one and Term four. The general adaptive test, 60 questions.
* Day 5 Problem solving /MTQ session. Tasks should be related to the topic.
* Homework: 30 minutes three times a week.

References: Cambridge Essential Mathematics 7

: Maths Mate Homework Book

**Term One (8 weeks)**

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| **Weeks** | **Topics** | **Assessment:** |
| 1 | Orientation activities |  |
| 2-6 | Chapter 1: Whole Numbers   * Place Value * Adding/Subtracting * Multiplying / Dividing * Estimating / Rounding * Order of Operations | Test |
| 7-9 | Chapter 3: Number Properties   * Factors, Multiples, Primes * Powers, Squares, Square Roots, Cubes, cube Roots | Test |

**Term Two (11 weeks)**

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| **Weeks** | **Topics** | **Assessment** |
| 1-3  *NAPLAN*  *week 5* | Chapter 2: Angles   * Measuring, estimating, drawing * Classifying and naming * Complementary, Supplementary * Angles and Parallel lines | Test |
| 4-6 | Chapter 8: Statistics:   * Mean, Median, Mode, Range * Stem and Leaf Plots * Dot Plots | Assignment-Snakes |
| 7-11 | Chapter 4: Fractions   * Introduction * Estimating, comparing * Adding, subtracting * Multiplying * Dividing * Mixed fractions | Test |

**Term Three (10 weeks)**

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| **Weeks** | **Topics** | **Assessment** |
| **1-5** | Chapter 8: Polygons   * Definition, Types of polygons * Triangles * Quadrilaterals | Assignment: Perplexing prices  Test |
| **6-8** | Chapter 8: Chapter 6: Decimals   * Place value, comparing * Rounding * Multiplication | Test: Polygonia |

**Term 4 (10 weeks)**

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| **Weeks** | **Topics** | **Assessment** |
| 1-3 | Chapter 6: Measurement   * Units of length * Perimeter * Area * Area of parallelograms * Area of triangles and composites * Volume of rectangular prisms * Draw different views of prisms/solids formed from combinations of prisms | Test  Making Nets  Assignment task |
| 4-5  *Year 7 camp* | Chapter 5: Cartesian Plane   * Plotting points | A3 picture |
| 6-7 | Chapter 5: Algebra   * Writing expressions * Substitution * Patterns and rules | Investigation:  Experimental probability (drawing pins) |
| 8 | Exam Revision | Semester Exam |
| 9 | Chapter 10: Transformations   * Translations * Reflections | Worksheet/Assignment |
| 10 | Step up:   * Millions Task |  |

**AusVels**

**Number and Algebra**

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| **Number and place value** | **Completed** |
| 1. Investigate index notation and represent whole numbers as products of powers of prime numbers [(ACMNA149)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA149) |  |
| 1. Investigate and use square roots of perfect square numbers [(ACMNA150)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA150) |  |
| 1. Apply the associative, commutative and distributive laws to aid mental and written computation [(ACMNA151)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA151) |  |
| 1. Compare, order, add and subtract integers [(ACMNA280)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA280) |  |
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| **Real numbers** |  |
| 1. Compare fractions using equivalence. Locate and represent positive and negative fractions and mixed numbers on a number line [(ACMNA152)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA152) |  |
| 1. Solve problems involving addition and subtraction of fractions, including those with unrelated denominators [(ACMNA153)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA153) |  |
| 1. Multiply and divide fractions and decimals using efficient written strategies and digital technologies [(ACMNA154)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA154) |  |
| 1. Express one quantity as a fraction of another, with and without the use of digital technologies [(ACMNA155)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA155) |  |
| 1. Round decimals to a specified number of decimal places [(ACMNA156)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA156) |  |
| 1. Connect fractions, decimals and percentages and carry out simple conversions [(ACMNA157)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA157) |  |
| 1. Find percentages of quantities and express one quantity as a percentage of another, with and without digital technologies. [(ACMNA158)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA158) |  |
| 1. Recognise and solve problems involving simple ratios [(ACMNA173)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA173) |  |
| **Money and financial mathematics** |  |
| 1. Investigate and calculate 'best buys', with and without digital technologies [(ACMNA174)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA174) |  |
| **Patterns and algebra** |  |
| 1. Introduce the concept of variables as a way of representing numbers using letters [(ACMNA175)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA175) |  |
| 1. Create algebraic expressions and evaluate them by substituting a given value for each variable [(ACMNA176)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA176) |  |
| 1. Extend and apply the laws and properties of arithmetic to algebraic terms and expressions [(ACMNA177)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA177) |  |
| **Linear and non-linear relationships** |  |
| 1. Given coordinates, plot points on the Cartesian plane, and find coordinates for a given point [(ACMNA178)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA178) |  |
| 1. Solve simple linear equations [(ACMNA179)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA179) |  |
| 1. Investigate, interpret and analyse graphs from authentic data [(ACMNA180)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA180) |  |

* + Sustainability

**Measurement and Geometry**

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| **Using units of measurement** | **Completed** |
| 1. Establish the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving [(ACMMG159)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG159) |  |
| 1. Calculate volumes of rectangular prisms [(ACMMG160)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG160) |  |
| **Shape** |  |
| 1. Draw different views of prisms and solids formed from combinations of prisms [(ACMMG161)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG161) |  |
| **Location and transformation** |  |
| 1. Describe translations, reflections in an axis, and rotations of multiples of 90° on the Cartesian plane using coordinates. Identify line and rotational symmetries [(ACMMG181)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG181) |  |
| **Geometric reasoning** |  |
| 1. Identify corresponding, alternate and co-interior angles when two straight lines are crossed by a transversal [(ACMMG163)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG163) |  |
| 1. Investigate conditions for two lines to be parallel and solve simple numerical problems using reasoning [(ACMMG164)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG164) |  |
| 1. Demonstrate that the angle sum of a triangle is 180° and use this to find the angle sum of a quadrilateral [(ACMMG166)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG166) |  |
| 1. Classify triangles according to their side and angle properties and describe quadrilaterals [(ACMMG165)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMMG165) |  |

**Statistics and Probability**

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| **Chance** | **Completed** |
| 1. Construct sample spaces for single-step experiments with equally likely outcomes [(ACMSP167)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP167) |  |
| 1. Assign probabilities to the outcomes of events and determine probabilities for events [(ACMSP168)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP168) |  |
| **Data representation and interpretation** |  |
| 1. Identify and investigate issues involving numerical data collected from primary and secondary sources [(ACMSP169)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP169) |  |
| * + Asia and Australia´s engagement with Asia |  |
| 1. Construct and compare a range of data displays including stem-and-leaf plots and dot plots [(ACMSP170)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP170) |  |
| 1. Calculate mean, median, mode and range for sets of data. Interpret these statistics in the context of data [(ACMSP171)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP171) |  |
| * + Sustainability |  |
| 1. Describe and interpret data displays using median, mean and range [(ACMSP172)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMSP172) |  |

**Topic One: Whole Numbers**

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| **Number and place value** |  |
| Apply the associative, commutative and distributive laws to aid mental and written computation [(ACMNA151)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA151) | * understanding that arithmetic laws are powerful ways of describing and simplifying calculations |
| Compare, order, add and subtract integers [(ACMNA280)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA280) | * understand the process of adding and subtracting integers |

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| Lesson | Learning Intention | Activities |
| 1 | Prior Knowledge | Pretest |
| 2 | Number Systems-compare three different number systems | Ex 1A(selected questions) |
| 3 | Place Value, to correctly identify the value of a digit | Ex 1B(selected questions) |
| 4 | Addition/Subtraction, to use simple techniques to assist with adding and subtracting  (Mental) | Ex 1C(selected questions) |
| 5 | Addition/Subtraction  Solving a problem | Ex 1D(selected questions)  Activity 1: Complete the Addition |
| 6-7 | Multiplying Large Numbers  Use an array to split numbers into 10s and 1s  Multiplying by numbers of 10  Different methods of multiplying | Ex 1F(selected questions)  Lattice Challenge(see power point) |
| 8-9 | Division  Dividing by multiple so 10 | Activity: Divisibilty Test  Ex 3C pg 115  Ex 1G(selected questions) |
| 10 | Estimating and Rounding, to have some idea of the answer | Ex1H(selected questions) |
| 11-12 | Order of Operations | Ex1I(selected questions)  Activity 2: Puzzling Year-1963 Cont’d |
| 13 | Problems and Challenges, using the skills taught to apply to Problems | Page 48 |
| 14 | Revising of content | Chapter Review, Pg 50-53 |
| 15 | How much has been learnt. | Test |

**Topic Two: Number Properties**

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| Number |  |
| Investigate index notation and represent whole numbers as products of powers of prime numbers [(ACMNA149)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA149) | * Defining and comparing prime and composite numbers explaining the difference between them |
| Investigate and use square roots of perfect square numbers [(ACMNA150)](http://ausvels.vcaa.vic.edu.au/Curriculum/ContentDescription/ACMNA150) | * investigating square numbers such as 25 and 36 and developing square root notation * investigating between which two whole numbers a square root lies |

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| Lesson | Learning Intention | Activities |
| 1 | Factors and Multiples, key building blocks of Number Theory | Ex 3A, pg108(selected questions)  EX3B, pg 113(selected questions) |
| 2 | Numbers can be arranged into rectangular arrays. | Activity 1: Rectangular Numbers Introduction |
| 3 | Numbers can be arranged into rectangular arrays. | Activity 1: Rectangular Numbers cont. |
| Some rectangles can be arranged in squares.  Square roots and square root notation. | Activity 2: Square Numbers  Ex 3G pg 136(selected questions) |
| 4 | Some numbers can be arranged into cubes  Cube roots and cube root notation. | Activity 3: Cube Numbers |
| 5 | Solving a problem by looking for a pattern | Squares on a chessboard (page 20) |
| 6-7 | Some numbers can only be arranged into one type of rectangle.  Prime numbers are numbers that can only be arranged into one type of rectangle  Composite numbers are numbers that can be arranged into more than one type of rectangle | Activity 4: Theeratosthenes Sieve of Eratosthenes  Ex 3D pg 121(selected questions)  Ex 3F pg 130(selected questions) |
| 8 | Revising of content | Chapter review pg 169-173 |
| 9 | How much has been learnt | Test |